HATCO AOC 25A ECOLOGICAL RISK ASSESSMENT WORK PLAN

Prepared for:

Hatco Remediation Project

July 1, 2020

Prepared by:

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Table of Contents

Figures

Acronyms

AOC	Area of Concern
ATSDR	Agency for Toxic Substance and Disease Registry
BAF	biota-accumulation factor
BEHP	bis(2-ethylhexyl) phthalate
BSAF	biota-sediment accumulation factor
COC	contaminant of concern
CSM	conceptual site model
DEHP	di(2-ethylhexyl) phthalate
DOP	dioctyl phthalate
EPA	US Environmental Protection Agency
EPEC	EPEC Polymers, Inc.
EPI	Estimation Programs Interface
ERA	ecological risk assessment
Hatco	Hatco Chemical
ISRA	Industrial Site Recovery Act
LSRP	Licensed Site Remediation Professional
MEHP	mono-ethylhexyl phthalate
NJDEP	New Jersey Department of Environmental Protection
PCB	polychlorinated biphenyl
POTW	publicly owned treatment work
ppt	parts per thousand
PI	Program Interest
PVC	polyvinylchloride
RAO	Response Action Outcome
SPARC	stimulating peripheral activity to relieve conditions
TOC	total organic carbon
TRV	toxicity reference value
USEPA	US Environmental Protection Agency

Weston	Weston Solutions, Inc.
Windward	Windward Environmental LLC

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1 Introduction

The following work plan describes the approach for evaluating the potential for risk to ecological receptors using historical and recent environmental data from within Area of Concern (AOC) 25 of the Hatco Chemical (Hatco) Site, as defined in the remedial investigation report (Weston 2016). This area is hereinafter referred to Hatco AOC 25. AOC 25a, one of the three subareas of Hatco AOC 25, is the wetland area south of Riverside Drive that receives surface water runoff from a drainage area that includes the Hatco property.

1.1 Site Description

The Hatco facility is located at 1020 King Georges Post Road, Fords, New Jersey; Hatco's AOC 25 is located south of the Hatco facility, across Riverside Drive, and it consists of the wetland areas described by Weston Solutions, Inc. (Weston) (2016) and is depicted in Figures 1-1 and 1-2. Hatco AOC 25 is situated on Block 93, Lot 100.011, Block 77, Lot 100.01, and Block 77, Lot 100 in Woodbridge Township, Middlesex County. AOC 25a is limited to Block 93, Lot 100.011.

The ecological evaluation described in this work plan specifically covers the northern portion of Hatco AOC 25, as shown in Figure 1-2 and identified as AOC 25a. The delineation of the boundary for AOC 25a will be confirmed as part of the 2020 sediment/soil sampling effort, which is described in the *Supplemental Sampling Plan for AOC 25 Hatco Site – Fords, New Jersey* (Weston 2020). AOC 25a represents the portion of Hatco AOC 25 where impacts from the Hatco facility have been identified.

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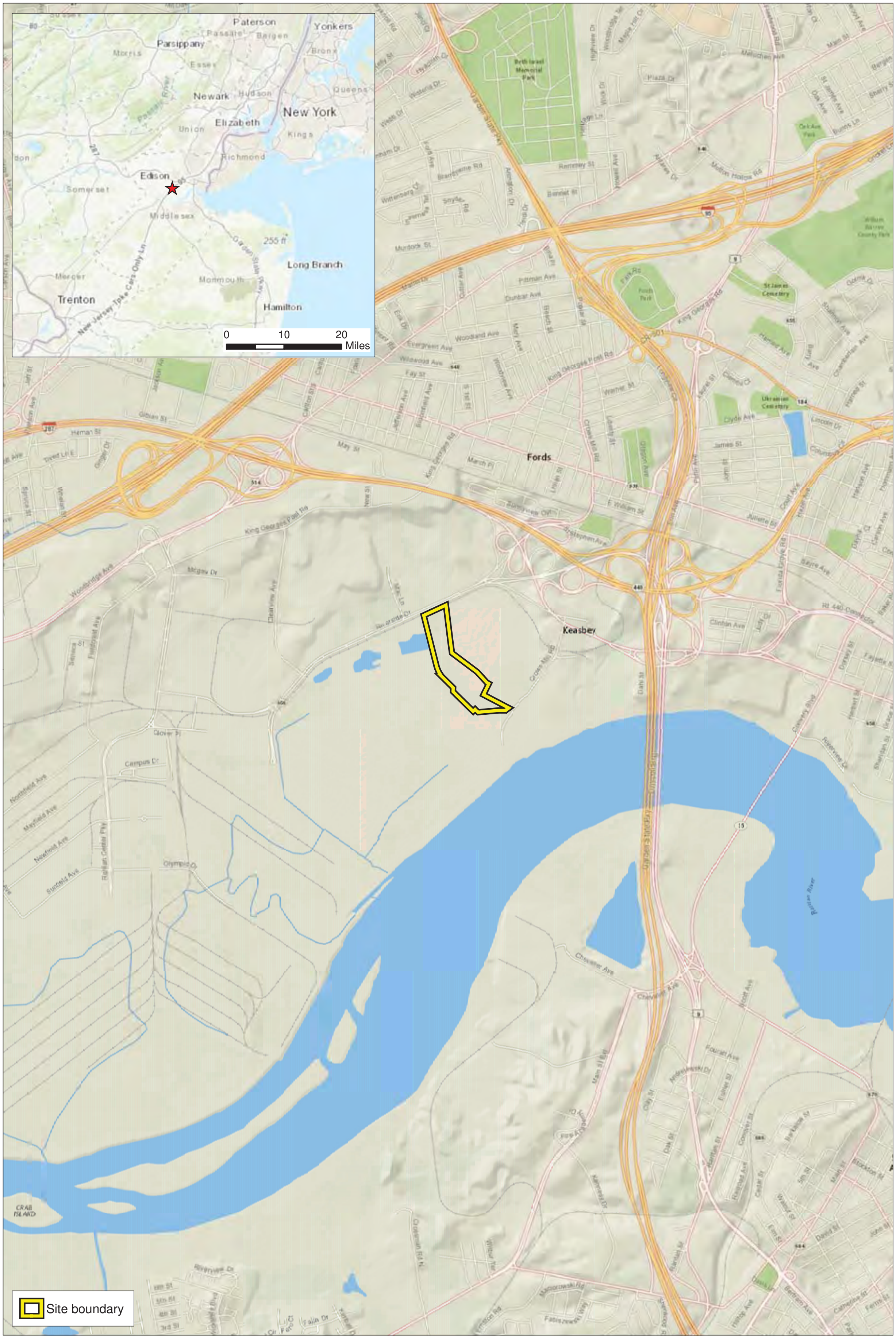

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Figure 1-1. Hatco AOC 25 site map

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Prepared by craigh, 4/27/20; \\mink\Company\Projects\Hatco ERA 2018\Data\GIS\Maps and Analyses\SurfSed_Soil_Rd2\Revised Work Plan 2020\Fig 1-1_6886a_Site Map.mxd

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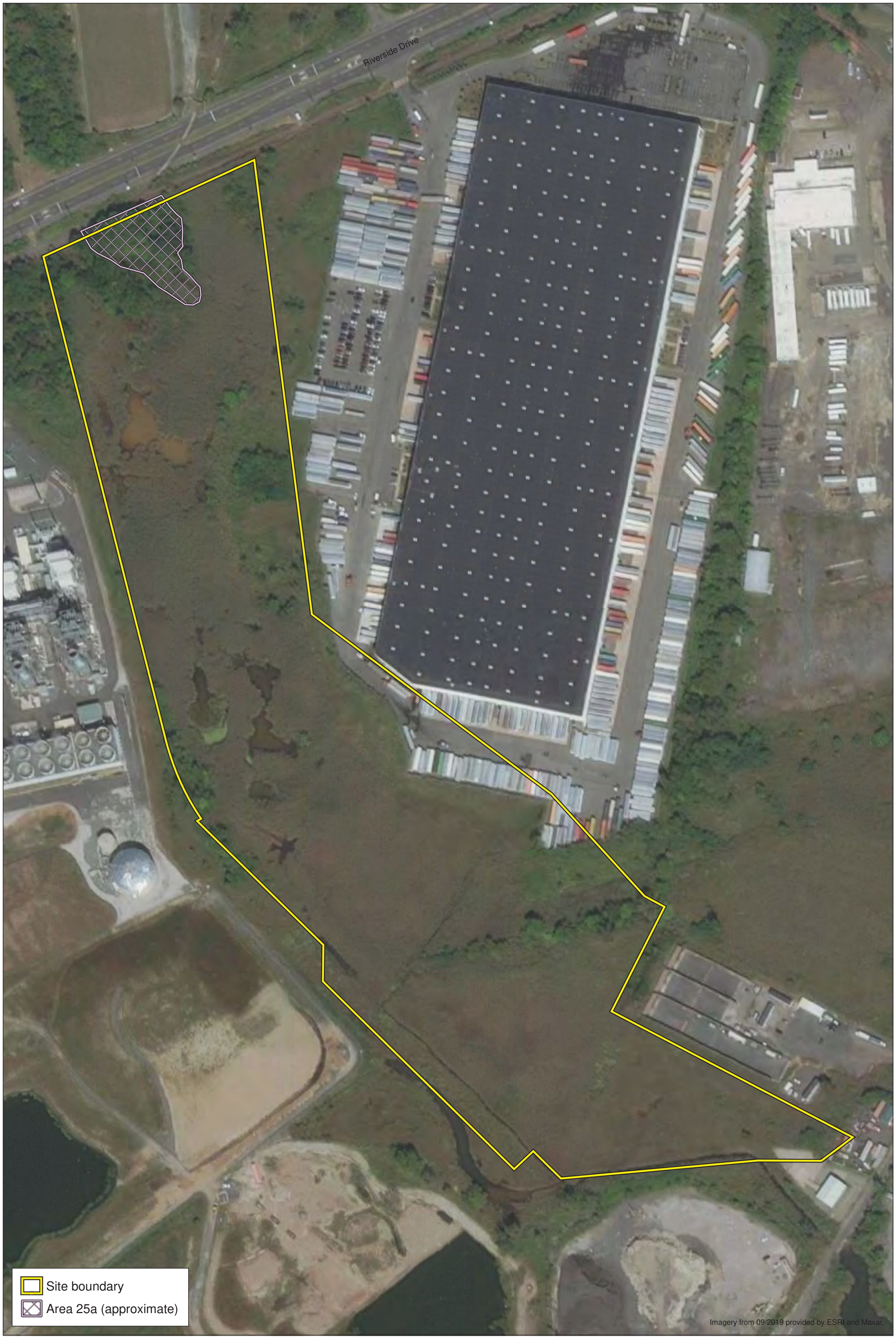

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N

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Figure 1-2. Hatco AOC 25 site boundary and the approximate AOC 25a evaluation area

Prepared by craigh, 5/27/20; W:\Projects\Hatco ERA 2018\Data\GIS\Maps and Analyses\SurfSed_Soil_Rd2\Revised Work Plan 2020\Fig 1-2_6980_Site boundary.mxd

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1.2 SITE HISTORY

The Hatco property was first developed in 1954 and has been used for various chemical manufacturing operations, including the production of plasticizers and synthetic lubricants for aircraft and military applications. The Hatco property has changed hands several times over the years and is currently owned and operated by Lanxess Solutions US, Inc.

From about 1957 to 1971, several ponds on the Hatco property were used for plant wastewater pretreatment. Beginning around 1957, a series of settling and skimming ponds were used to recover useful organics prior to discharge on the Hatco property (Weston 2016), since the facility was not connected to the publicly owned treatment works (POTW) until 1966. Two wastewater lagoons were constructed in 1966 to provide temporary storage for peak flows prior to discharge to the POTW. From 1966 to 1971, the pond system discharged to these lagoons. Use of the lagoons was discontinued in 1991 and they were closed in place (Weston 2016).

Pathways from the Hatco property and upstream areas to Hatco AOC 25 included Channels A and B to Channel D and the historical Crows Mill Creek alignment. Channel B and Crows Mill Creek predated Hatco's ownership of the property and were part of the existing regional surface water drainage. Channel A was added by Hatco in 1965 as part of the lagoon construction.

Environmental investigations have been ongoing at Hatco AOC 25 since 1992 by Hatco and since the 1980s by the property owner. Investigations have included the collection of surface water, sediment, soil, and groundwater samples, initially for semi-volatile organic compounds (SVOCs) and polychlorinated biphenyls (PCBs), with some metals and volatile organic compound (VOC) analyses. These prior investigations concluded that the principal Hatco-related contaminants of concern (COCs) within Hatco AOC 25a are bis(2-ethylhexyl) phthalate (BEHP) and PCBs (Weston 2016; ELM Group 2018). These COCs have been determined to have migrated from the Hatco facility to AOC 25a via the historical alignment of Crows Mill Creek and Channel D. Channel D, Crows Mill Creek, and the intervening marsh (i.e., Hatco AOC 25) form a freshwater and estuary wetland system that is currently infested with dense stands of phragmities throughout most of its extent. The system receives water from upland industrial areas to the north, east, and west before emptying into the Raritan River at its southernmost extent. AOC 25a is predominantly wooded wetland with peripheral phragmities stands.

Hatco's remediation at Hatco AOC 25 is being tracked by New Jersey Department of Environmental Protection (NJDEP) as Program Interest (PI) No. G000003943 and is being overseen by Licensed Site Remediation Professional (LSRP) Mark Fisher.

Investigation and remediation of the Hatco AOC 25 wetland area was also performed by EPEC Polymers, Inc. (EPEC) as part of the Industrial Site Recovery Act (ISRA) case triggered by the cessation of operations at Nuodex (referenced by NJDEP as PI No.

G000001659). EPEC's case identified two subareas within Hatco AOC 25 as separate from AOC 25a: AOC 4 and AOC D. EPEC AOC 4 corresponds to an unknown railway area release, and AOC D covers the entirety of former Block 61, Lot 2. EPEC's LSRP, Steve Kessel of Brown and Caldwell, issued a Response Action Outcome (RAO) on March 1, 2019, for EPEC's AOC 4 and AOC D, terminating EPEC's remediation for these AOCs.

GreDel owns the lot immediately uphill to the east of Hatco AOC 25a, as well as the lot south of EPEC, which was investigated by Hatco as part of the greater Hatco AOC 25. Former operations on the GreDel lots have included asphalt plants, a junkyard, and a Class B recycling facility; closure of the asphalt plants triggered an ISRA case, which was referenced by NJDEP as PI No. G000041281. This case is currently directed by LSRP Ken Hart, who issued an RAO for specific AOCs on GreDel's lots on August 30, 2013 (with administrative amendment on June 5, 2014). The RAO was issued after placing a cap over historic fill, filing a Deed Notice, and securing a Remedial Action Permit for Soils. The Deed Notice states that the fill is impacted by PCBs, citing concentrations of up to 11.7 mg/kg.[1] The RAO does not close out the entire case, so this case remains open with additional remediation obligation.

The focus of this ecological evaluation work plan is BEHP within AOC 25a. A site-specific remediation goal for PCBs has already been approved by the US Environmental Protection Agency (USEPA) (USEPA 2005) and NJDEP (NJDEP 2006).

1.3 Document Organization

The remainder of this work plan is organized as follows:

- Section 2 presents a general ecological problem formulation for AOC 25a.
- Section 3 presents the data that will be used to evaluate ecological risk.
- Section 4 presents how BEHP ecological toxicity thresholds will be evaluated.
- Section 5 presents the general methods that will be used to evaluate potential ecological risk.
- Section 6 provides the references used herein.

[1] Middlesex County Deed Book 06441 Page 141.

2 Ecological Problem Formulation

This section provides a general ecological problem formulation for AOC 25a. Consistent with NJDEP ecological evaluation guidance (NJDEP 2018) and US Environmental Protection Agency (EPA) ecological risk assessment (ERA) guidance (EPA 1997), the problem formulation includes descriptive information on the ecology; BEHP fate and transport pathways; and potential ecological receptors, exposure pathways, and assessment endpoints for AOC 25a.

2.1 Ecology

The wetlands of Hatco AOC 25, wherein AOC 25a is located (Figure 1-2), are within the drainage area of Crows Mill Creek and are part of a larger wetland complex.

Although there is limited information available regarding the ecology of Hatco AOC 25a, Great Ecology (2015) conducted a survey of the wooded wetlands area adjacent to Hatco AOC 25a and West Lake, which is west of the wooded wetlands area. Vernal pools in the wooded wetlands were described as isolated. However, water from the southern end of the wooded wetlands historically flowed onto Hatco AOC 25, so the two areas likely have shared ecology. Likewise, the forested wetland around West Lake is expected to have wetland and terrestrial habitats similar to those at the larger Hatco AOC 25, including AOC 25a.

Currently, Channel D emerges from a culvert under Riverside Drive and flows south into a wetland (Weston 2016), although historically it curved southeast and connected to the old Crows Mill Creek alignment. During its survey of the wooded woodlands and vernal pools to the west of AOC 25, Great Ecology (2015) observed a number of amphibian species, including green frogs (*Rana clamitans melanota*), northern spring peepers (*Pseudacris crucifer*), New Jersey chorus frogs (*Pseudacris triseriata kalmia*), bullfrogs (*Rana catesbeiana*), and four-toed salamanders (*Hemidactylium scutatum*), as well as tadpoles of unidentified species; reptile species, included eastern painted turtles (*Chrysemys picta*) and eastern garter snakes (*Thamnophis sirtalis sirtalis*); and several invertebrate species that have aquatic larval stages, including mosquitos (family *Culcidae*), whirligig beetles (family *Gyrinidae*), damselflies (suborder *Zygoptera*), and dragonflies and dragonfly larvae (suborder *Anisoptera*). Although they were not observed, midges (*Chironomid* sp.), amphipods (*Hyalella azteca*), and oligochaetes (e.g., *Lumbriculus variegatus* and *Tubifex tubifex*) are assumed to be present in the wetland, since they are ubiquitous benthic invertebrates that can withstand variable conditions, including those of wetland habitat (Gibbons and Mackie 1991; Beck 1977; Hiltunen and Klemm 1980). No fish were observed in the vernal pools of the wooded wetland area (Great Ecology 2015), but fish were observed in West Lake, including brown bullhead (*Ameiurus nebulosus*), banded killifish (*Fundulus diaphanus*), and pumpkinseed (*Lepomis gibbosus*).

Great Ecology (2015) observed more than 80 wetland/semi-aquatic and terrestrial avian species in the West Lake area, the most abundant and common of which included: wading birds (i.e., herons and egrets), ducks and geese, gulls and terns, cormorants, shorebirds (i.e., killdeer), songbirds, wrens, sparrows, swallows, warblers, swifts, woodpeckers, flycatchers, passerines, finches, chickadees, blackbirds, doves, and hawks.

Crows Mill Creek is considered tidally influenced freshwater (ELM Group 2018). While there is a tide gate upstream from the confluence of Crows Mill Creek and the Raritan River, ELM Group (2018) observed a reversal of surface water flow coinciding with high tide at a sampling location just upstream from the tide gate; furthermore, red-jointed fiddler crab (*Uca minax*), a species common to salt marshes in the eastern United States, was also observed. However, NJDEP classifies these types of streams in the Raritan River basin as FW2-NT (i.e., freshwater not for trout production or maintenance) (Exponent 2006). Salinity in Crows Mill Creek is less than 3.5 parts per thousand (ppt), so NJDEP considers it to be freshwater.

2.2 BEHP Fate and Transport

BEHP is a colorless liquid with almost no odor that is used as an additive in plastics to make them more flexible (ATSDR 2002). BEHP is in a class of compounds called phthalate esters but commonly referred to as plasticizers. It has been identified at 737 of the almost 2,000 current and former National Priorities List sites. BEHP is also known as di(2-ethylhexyl) phthalate (DEHP) and dioctyl phthalate (DOP). Trade names for BEHP include Platinol DOP, Hatcol DOP, Nuoplaz DOP, Octoil, Silicol 150, Bisoflex 81, and Eviplast 80. BEHP is the phthalate ester most commonly used in the manufacture of polyvinylchloride (PVC), which is used in the production of food wraps, plastic tubing, floor tiles, furniture, automobile upholstery, toys, shower curtains, and some personal care products, as well as in some applications as a heat transfer fluid (Rhodes et al. 1995; Mitsunobu and Takahashi 2006; Staples et al. 1997). As such, there is large-scale production and usage of BEHP and other phthalate esters, which leads to their release into the environment via wastewater effluents during production, and via leaching and volatilization from plastic products during their use and after their disposal (Rhodes et al. 1995; ATSDR 2002; Mitsunobu and Takahashi 2006).

2.2.1 Water solubility

A compound's water solubility is an important factor that influences its environmental fate and transport (Staples et al. 1997). The reported solubility of BEHP varies by method of determination. Researchers using a shake-flask-centrifugation method generally obtained similar freshwater solubility results, 0.285 to 0.40 mg/L (20 to 25°C), although one researcher's results were an order of magnitude lower, 0.041 mg/L at an unspecified temperature (Staples et al. 1997). Using the stimulating peripheral activity to relieve conditions (SPARC) structure activity program and the structure activity relationships in EPIWIN,[2] the freshwater solubility of BEHP was calculated to be 0.0026 and 0.0011 mg/L, respectively. Solubility measurements in seawater were higher, ranging from 0.16 to 1.2 mg/L. Precise water solubility for hydrophobic compounds can be more difficult to measure due to complications during experiments, such as incidental sampling of colloidal emulsion of undissolved chemicals or contamination from laboratory plastics. Some of these issues may explain the discrepancy in reported solubility values.

Despite the differences among reported solubility values, it is understood that BEHP has a low solubility, and the Agency for Toxic Substance and Disease Registry (ATSDR) has accepted the lowest reported experimentally derived value of 0.041 mg/L as the water solubility for BEHP (ATSDR 2002).

2.2.2 Water and octanol partitioning

The equilibrium partitioning of a compound in water and octanol (K_{ow}) can be used as a predictor of the likelihood of that compound to partition into water, organism lipid, and sediment or soil organic matter (Staples et al. 1997). A Log K_{ow} value greater than 1 indicates that the compound favors lipid or particulate matter phases, the implication being the compound's likelihood to bioaccumulate in organism lipids. BEHP has reported Log K_{ow} values of 4.2 to 8.9, indicating its partiality for the non-aqueous phases (Staples et al. 1997; ATSDR 2002). A generally accepted Log K_{ow} value for BEHP is 7.5.

2.2.3 Organic matter partitioning

As indicated by its Log K_{ow} and low water solubility, the hydrophobic properties of BEHP favor sorption to soil, sediment, or suspended solids (Staples et al. 1997). Experimentally derived Log organic carbon-to-water partition coefficient (K_{oc}) values for BEHP range from 4.9 to 6.0 (Staples et al. 1997; ATSDR 2002). Thus, the high Log K_{ow}, high $K_{oc,}$ and low water solubility of BEHP all accurately predict that it will bind strongly to organic matter and solid organic phases. As such, the environmental transport of BEHP is highly dependent on the transport of particles (ECB 2008).

2.2.4 Degradation pathways

The abiotic degradation of BEHP in surface water is relatively slow. The estimated photolysis half-life of BEHP is 144 days (Environment Canada and Health Canada 1994). However, the biodegradation of BEHP is temperature dependent in surface water (Environment Canada and Health Canada 1994; ECB 2008). In two studies, 33 to 35% biodegradation of BEHP occurred in surface water after 10 to 35 days at approximately 20°C, while no biodegradation occurred after 10 days at 4°C (ECB 2008).

[2] The Estimation Programs Interface (EPI) Suite™ is a Windows®-based suite of physical chemical property and environmental fate estimation programs.

The estimated aerobic biodegradation half-life of BEHP in surface water is 5 to 30 days, while the anaerobic biodegradation half-life of BEHP in surface water is 42 to 389 days (Environment Canada and Health Canada 1994). The primary route of BEHP biodegradation results in the metabolite mono-ethylhexyl phthalate (MEHP), which is even more toxic than BEHP (ECB 2008; Environment Canada and Health Canada 1994).

The influences of oxygen and temperature on the biodegradation of BEHP in sediment are similar to their influences on the biodegradation of BEHP in surface water. Biodegradation in sediment is insignificant at temperatures between 5 and 12°C and under anaerobic conditions (ECB 2008). Under aerobic conditions at 22°C, one study determined that 47 and 59% of BEHP had biodegraded after 14 and 30 days of incubation, respectively (ECB 2008). However, while another study found a significant difference between biodegradations at temperatures from 5 to 12°C and from 22 to 28°C, no such difference was found under differing aerobic conditions (ECB 2008). Due to the variance of BEHP biodegradation rates in sediment, BEHP is estimated to have a half-life of 300 days under aerobic conditions and 3,000 days under anaerobic conditions (ECB 2008).

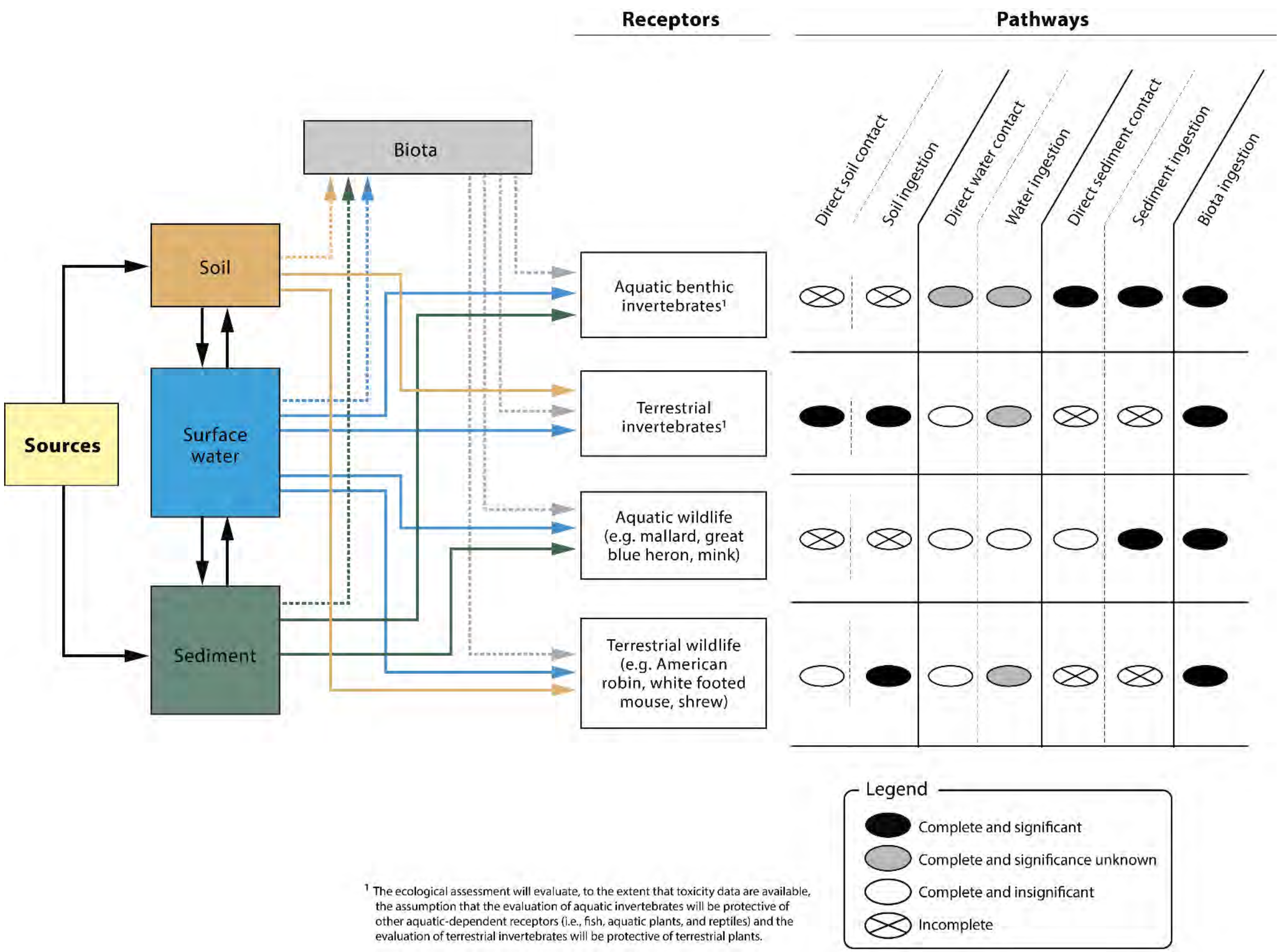
2.3 Potential Ecological Receptors and Exposure Pathways

A number of ecological receptor groups are expected to be present in and utilize AOC 25a. These include both terrestrial receptors that use the upland soil habitat areas and semi-aquatic or aquatic species that use creek, vernal pool, or other inundated wetland habitats. The list of potential receptors at AOC 25a includes the following:

- Aquatic-dependent receptors (e.g., benthic invertebrate communities, amphibians, fish, and aquatic plants)
- Terrestrial invertebrates and plants
- Aquatic wildlife, such as dabbling ducks (e.g., mallards [*Anas playrhnchos*]), wading birds (e.g., great blue heron [*Ardea herodias*]), and semi-aquatic mammals (e.g., mink [family *Mustelidae*])
- Terrestrial wildlife such as invertivorous birds (e.g., American robin [*Turdus migratorius*]), small herbivorous mammals (e.g., white-footed mouse [*Peromyscus leucopus*]), and small invertivorous mammals (e.g., shrew [family *Soricidae*])

The assessment endpoint for these receptors is the impact of Site BEHP exposure on survival, growth, and reproduction. This will be evaluated through the comparison of site data to available and relevant BEHP toxicity data.

A general ecological conceptual site model (CSM) is presented in Figure 2-1. Exposures for these receptors include both direct contact with sediment, soil, and/or surface waters and dietary bioaccumulation through direct and indirect ingestion (for higher trophic level organisms). Mobile higher trophic level organisms (i.e., wildlife) that potentially forage within AOC 25a have home ranges that can greatly exceed the extent of AOC 25a, which is less than 1 acre in size. For example, Henning et al. (1999) reported the median distance traveled by great blue herons to foraging sites as 12 km.[3] The mallard's home range depends on habitat (e.g., the type and distribution of water habitat and population density) and can vary from 90 to 3,500 acres (0.364 to 14.164 km^2) in size, the average being from 270 to 1,500 acres (1.109 to 6.070 km^2) (EPA 1993).



[1] The ecological assessment will evaluate, to the extent that toxicity data are available, the assumption that the evaluation of aquatic invertebrates will be protective of other aquatic-dependent receptors (i.e., fish, aquatic plants, and reptiles) and the evaluation of terrestrial invertebrates will be protective of terrestrial plants.

Figure 2-1. Ecological CSM for AOC 25a

3 Available data

The characterization of ecological exposure will be dependent on site-specific data. Sediment and soil data collected within AOC 25a will be used to evaluate the potential ecological exposure of receptors to BEHP. Only surface sediment samples collected from a depth of 0 to 15 cm (0.0 to 0.5 ft) will be used; this is the depth typically used to assess ecological impacts, although depth can vary based on site-specific conditions.

BEHP chemistry data will be compared to appropriate ecological thresholds. Other data—such as water salinity, total organic carbon (TOC), and grain size—may also be considered to help evaluate the relevance of potential BEHP ecological toxicity to site-specific conditions. Weston (2020) presents the historical and proposed 2020 soil and sediment sampling locations that will be used to support the ERA evaluation.

3.1 Historical Data

Weston compiled and provided to Windward Environmental LLC (Windward) a complete sediment/soil sample database of samples collected at the AOC 25 Site from 1994 to 2012, as summarized in the *Remedial Investigation Report, Hatco Site, Fords New Jersey* (Weston 2016). Previously collected data that will be considered in the overall characterization of AOC 25a are presented in Weston (2020). Only data from surface (0- to 15-cm) sediment and soil samples that are being considered for the overall characterization for AOC 25a will be used to evaluate the potential for ecological exposure.

3.2 2020 Data

A supplemental sampling plan (Weston 2020) describes the collection of soil and sediment samples in spring 2020 in the northern portion of the Channel D wetland to define the boundary of AOC 25a. These samples—which will be collected to support the ERA by supplementing the spatial coverage of previously collected data—include surface (0- to 15-cm) soil and sediment samples for the analysis of BEHP, TOC, and grain size, as well as surface water salinity samples. The sampling areas of focus for the 2020 dataset will be along Channel D and its bank, Crows Mill Creek and its bank, and four transect areas between Channel D and Crows Mill Creek.

Sediment and soil samples will be designated as such during field sampling. Sediment samples will be "any material falling within the bed (but not bank) of stream channels, flowing ditches or ponds" (Weston 2020). Within delineated wetland areas outside of stream channels, a sample's designation as soil or sediment will be dependent on the level of saturation of the soil matrix, as described in the supplemental sampling plan.

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4 Evaluation of Ecological Effect Thresholds

Following the guidance of NJDEP (2018) and EPA (1997), toxicity data will be evaluated as part of the ecological assessment. Available toxicity data will be evaluated to determine appropriate levels of BEHP for the protection of ecological receptors. This process will include an evaluation of existing published ecological screening thresholds and general toxicological literature. A search of toxicity databases, such as USEPA's ECOTOX[4] (https://cfpub.epa.gov/ecotox/), will be conducted to evaluate relevant ecological toxicity thresholds.

The supplemental sampling plan (Weston 2020) compares historical data to the following BEHP screening levels:

- **Soil** – The screening level of 49 mg/kg is based on an unrestricted use cleanup criterion (a human health risk-based value).
- **Sediment** – The screening level of 0.75 mg/kg is based on the NJDEP ecological screening criterion (a severe effects level) for freshwater sediments (NJDEP 2009).

These screening levels will be evaluated to determine whether they are appropriate for determining adverse effects on ecological receptor populations within AOC 25a. The evaluation will consider the following:

- BEHP literature-based toxicology, including the uncertainties of field- and lab-based toxicity data
- No- and lowest-effect levels and their significance in risk determination and levels of protection
- The relative toxicity of BEHP-exposed invertebrates to higher trophic level organisms; sediment and/or soil toxicity thresholds for wildlife can be estimated using a dietary bioaccumulation model that is dependent on receptor-specific parameters, dietary toxicity reference values (TRVs), and uptake models (i.e., biota-sediment accumulation factors [BSAFs] or biota-accumulation factors [BAFs]).
- The effects of Site-specific sediment and/or soil characteristics (e.g., TOC and grain size) that may affect the bioavailability or toxicity of BEHP

[4] ECOTOX was used to compile current and existing ecological toxicity data as part of the determination of BEHP as a high-priority substance, per USEPA (2019).

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5 Methods for Risk Characterization

The potential for ecological risk will be evaluated by comparing BEHP concentrations from the comprehensive dataset (i.e., comprising both pre-2020 and 2020 surface soil/sediment samples, as described in Section 3) to appropriate ecological thresholds within a relevant spatial scale. The spatial scale will consider aquatic versus terrestrial habitats, as well as the spatial extent of AOC 25a relative to the home range or relevant scale of an ecological population or community. Consistent with NJDEP (2018), sediment data will be compared to sediment toxicity thresholds and soil data will be compared to terrestrial toxicity thresholds; any substrate that is both soil and sediment (depending on the time of year) will be compared to both.

The outcome of the ecological assessment will be one of two conclusions:

- If BEHP concentrations within AOC 25a are not expected to result in adverse effects on ecological populations, no further ecological evaluation will be conducted.
- If BEHP concentrations within AOC 25a are expected to result in adverse effects on ecological populations, the following further evaluations will be considered in consultation with NJDEP:
    - Confirmation of assumptions used in assessment (e.g., pathways, receptors, and habitat areas) through a Site visit
    - A spatial evaluation of “hot spots” with the highest BEHP concentrations driving exceedances of a risk threshold
    - A focused field study to evaluate the ecological receptors/receptor groups potentially at risk
    - Development of site-specific remediation thresholds through the use of spiked bioassays

The ecological risk evaluation for AOC 25a will consist of a phased approach, dependent on the results of the initial assessment. The evaluation that will be conducted per the methods outlined in this Work Plan will consider the relative areal extent of BEHP within ecological areas of AOC 25a and to what extent the concentrations of BEHP exceed toxicity thresholds. Further discussion with NJDEP will determine future, if any, additional phases of the ecological assessment.

The ecological assessment for AOC 25a will be presented in a report following the methods discussed in this work plan.

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